Proposed Regulatory Language

Division 3. AIR RESOURCES

Chapter 1. AIR RESOURCES BOARD

Subchapter 10. Climate Change

Article 4. Regulations to Achieve Greenhouse Gas Emission Reductions

Subarticle 4.
Gas Insulated Switchgear

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PROPOSED REGULATION ORDER

Adopt new Subarticle 4, Gas Insulated Switchgear

Sections 95350 to 95356, title 17, California Code of Regulations, to read as follows:

Subchapter 10. Climate Change

Article 4. Regulations to Achieve Greenhouse Gas Emission Reductions

[Note: All of the text below is new language to be added to the California Code of Regulations (CCR)]

Subarticle 4. Gas Insulated Switchgear

Sections 95350 through 95356

§ 95350. Purpose, Scope and Applicability.

(a) Purpose. The purpose of this regulation is to lower greenhouse gas emission levels by reducing sulfur hexafluoride (SF_6) emissions from gas insulated switchgear.

(b) Scope. This Subarticle addresses SF_6 used in gas insulated switchgear.

(c) Applicability.

(1) The provisions of this Subarticle apply to owners of gas insulated switchgear.

(2) Distributors of SF_6 used in gas insulated switchgear are subject to the provisions of title 17, California Code of Regulations, sections 95340 *et seq*.

§ 95351. Definitions.

(a) For the purposes of this Subarticle the following definitions apply**:**

(1) **"Active GIS Equipment"** means SF_6 gas insulated switchgear that is actively connected to the GIS owner's electrical transmission or distribution system. "Active equipment" does not include equipment in storage.

(2) **"Emission rate"** means a facility's total annual SF_6 emissions divided by the total nameplate capacity of all active, non-hermetically sealed GIS.

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(3) **"Executive Officer"** means the Executive Officer of the California Air Resources Board (ARB) or his or her designee.

(4) **"Gas container"** means a pressurized vessel containing or designed to contain SF_6.

(5) **"Gas-insulated switchgear or GIS"** means any combination of electrical disconnects, fuses, transformers and/or circuit breakers used to isolate electrical equipment, which are insulated by pressurized SF_6 gas.

(6) **"GIS Owner"** means the person that owns gas insulated switchgear.

(7) **"Hermetically Sealed Gas Insulated Switchgear"** means switchgear which is designed and intended to be gas-tight and sealed for life. This type of switchgear is pre-charged with SF_6 , sealed at the factory, and is not refillable by its user.

(8) **"Nameplate Capacity"** means the gas insulated switchgear manufacturer's recommended capacity of SF_6 for optimal performance of a GIS device. Nameplate capacity may be found on the nameplate attached to the GIS device, or stated within the manufacturer's official product's specifications.

(9) **"Person"** shall have the same meaning as defined in Health and Safety Code section 39047.

§ 95352. Maximum Annual SF_6 Emission Rate.

The maximum, aggregate, annual SF_6 emission rate for each GIS owner's transmission and distribution system, shall not exceed the following:

Effective Date	Maximum SF_6 Emission Rate
January 1, 2011	10.0%
January 1, 2012	9.0%
January 1, 2013	8.0%
January 1, 2014	7.0%
January 1, 2015	6.0%
January 1, 2016	5.0%
January 1, 2017	4.0%
January 1, 2018	3.0%
January 1, 2019	2.0%
January 1, 2020	1.0%

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§ 95353. Annual SF_6 Emissions, Annual SF_6 Emission Rate, and Annual Gas Insulated Switchgear Inventory Reporting Requirements.

(a) Each GIS owner shall annually submit the following reports to the Executive Officer no later than June 1 of each calendar year beginning in 2012 for emissions occurring in the previous calendar year:

(1) An SF_6 emission report;

(2) An SF_6 emission rate report; and

(3) A gas insulated switchgear inventory report.

(b) Each report shall be identified with the following information:

(1) Entity name, physical address, and mailing address;

(2) Name and contact information including e-mail address and telephone number of the person submitting the report and the person primarily responsible for preparing and submitting the report;

(3) The year for which the report is submitted;

(4) A signed and dated statement provided by the GIS owner that the report has been prepared in accordance with this Subarticle, and that the statements and information contained in the emission data report are true, accurate, and complete.

(c) *Annual SF_6 Emission Report*.

(1) GIS owners shall prepare and submit an annual SF_6 emission report as follows:

(A) Within greenhouse gas emission reports submitted to the Executive Officer pursuant to title 17, California Code of Regulations, sections 95100, *et seq.*, or

(B) As specified in the methodology contained in Appendix A.

(d) *Annual SF_6 Emission Rate Report.*

(1) GIS owners shall calculate their annual SF_6 emission rate within an emission rate report using the methodology specified in Appendix B.

(2) The annual SF_6 emission rate report shall be submitted to the Executive Officer by using either the sample format found in

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Appendix B, or in a form determined by the GIS owner which meets the requirements of this section.

(e) *Annual SF_6 GIS Inventory Report.*

(1) All GIS owners shall establish and maintain a current and complete inventory of all GIS and SF_6 gas containers which includes the following information:

(A) Equipment identification number;

(B) Equipment type;

(C) Seal type (hermetic or non-hermetic);

(D) Equipment manufacturer;

(E) Date equipment was manufactured;

(F) Equipment voltage capacity (in kilovolts);

(G) EquipmeII SF_6 nameplate capacity (charge in Iounds);

(H) Equipment location;

1. Date equipment was installed at present location;

2. Date equipment was removed from this location and reason for the removal (equipment was retired, sold, returned to the manufacturer within the reporting year, etc.);

(I) Equipment status (in use, not in use); and

(J) The total number of SF_6 gas containers, listed by container size and location (e.g., 100, 5 lb. gas containers (cylinders), located at XYZ substation.)

(2) The annual inventory report may be submitted using the sample format found in Appendix C or in a form determined by the GIS owner that meets the requirements of this section.

§ 95354. Recordkeeping.

Owners of gas insulated switchgear shall:

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(a) Maintain records, including, but not limited to supporting material invoices, purchase receipts, accounting records, and gas container inventory spreadsheets;

(b) Continuously update and maintain as current all inventory data;

(c) Retain records required by this subsection for three years at the normal place of business of an entity subject to this regulation; and

(d) Provide these records upon request by ARB, within 30 working days to the Executive Officer.

§ 95355. Enforcement.

(a) *Penalties.* Penalties may be assessed for any violation of this Subarticle pursuant to Health and Safety Code section 38580. Each day during any portion of which a violation occurs is a separate offense.

(b) *Injunctions.* Any violation of this may be enjoined pursuant to Health and Safety Code section 41513.

(c) *Revocation.* The Executive Officer may revoke any exemption issued pursuant to this for a violation of this.

(d) Each day or portion thereof that any report required by this remains unsubmitted, is submitted late, or contains incomplete or inaccurate information, shall constitute a single, separate violation of this.

§ 95356. Severability.

Each part of this section is deemed severable, and in the event that any part of this section is held to be invalid, the remainder of this section shall continue in full force and effect.

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APPENDIX A

Method for Calculating Sulfur Hexafluoride Emissions

GIS owners shall use this approach to calculate emissions as specified in section 95353 of the regulation.

SF_6 EMISSION INVENTORY REPORTING METHOD AND FORM

This worksheet is based on the **mass-balance method**. The mass-balance method works by tracking and systematically accounting for all operator uses of SF_6 during the reporting year. The quantity of SF_6 that cannot be accounted for is then assumed to have been emitted to the atmosphere. The method has four subcalculations (A-D), a final total (E), and an emission rate calculation (F) as follows:

A. **Change in Inventory**. This is the difference between the quantity of SF_6 in storage at the beginning of the year and the quantity in storage at the end of the year. The "quantity in storage" includes SF_6 contained in cylinders (such as 115-pound storage cylinders), gas carts, and other storage containers. It does not refer to SF_6 held in operating equipment. The change in inventory will be negative if the quantity of SF_6 in storage increases over the course of the year.

B. **Purchases/Acquisitions of SF_6**. This is the sum of all the SF_6 acquired from other entities during the year either in storage containers or in equipment.

C. **Sales/Disbursements of SF_6**. This is the sum of all the SF_6 sold or otherwise disbursed to other entities during the year either in storage containers or in equipment.

D. **Change in Total Nameplate Capacity of Equipment**. This is the net increase in the total volume of SF_6 -using equi–ment during the year. Note that "total nameplate capacity" refers to the full and proper charge of the equipment rather than to the actual charge, which may reflect leakage. This term accounts for the fact that if new equipment is purchased, the SF_6 that is used to charge that new equipment should not be counted as an emission. On the other hand, it also accounts for the fact that if the amount of SF_6 recovered from retiring equipment is less than the nameplate capacity, then the difference between the nameplate capacity and the recovered amount has been emitted.

This quantity will be negative if the retiring equipment has a total nameplate capacity larger than the total nameplate capacity of the new equipment.

E. **Total Annual Emissions**. This is the total amount of SF_6 emitted over the course of the year, based on the information provided above.

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SF_6 Emission Report

Annual Reporting Form

Name:		Company Name:	
Title:		Report Year:	
Phone:		Date Completed:	

Decrease in Inventory (SF_6 in containers, not electrical equipment)

Inventory (in containers, **not** equipment)	AMOUNT (lbs.)	Comments
1. Beginning of Year		
2. End of Year		
A. Decrease in Inventory (1 - 2)		

Purchases/Acquisitions of SF_6

	AMOUNT (lbs.)	Comments
3. SF_6 purchased from producers or distributors in cylinders or other containers		
4. SF_6 provided by equipment manufacturers with/inside equipment		
5. SF_6 returned to the site after off-site recycling		
B. Total Purchases/Acquisitions (3+4+5)		

Sales/Disbursements of SF_6

	AMOUNT (lbs.)	Comments
6. Sales of SF_6 to other entities, including gas left in equipment that is sold		
7. Returns of SF_6 to supplier		
8. SF_6 sent to destruction facilities		
9. SF_6 sent off-site for recycling		
C. Total Sales/Disbursements (6+7+8+9)		

Increase in Nameplate Capacity

	AMOUNT (lbs.)	Comments
10. Total nameplate capacity (proper full charge) of new equipment		
11. Total nameplate capacity (proper full charge) of retired or sold equipment		
D. Increase in Capacity (10 - 11)		

Total Annual Emission

	lbs. SF_6	kgs. SF6	Tonnes CO_2 equiv.
E. Total Emission (A+B-C-D) (lbs.)			

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APPENDIX B

Method for Calculating Sulfur Hexafluoride Annual Emission Rate.

By providing the total nameplate capacity of all gas insulated switchgear in your facility at the end of the year, you can obtain an estimate of the emission rate of your facility's equipment (in percent per year). The emission rate is equal to the total annual emissions divided by the total nameplate capacity. [NOTE: Total nameplate capacity excludes the capacity of "hermetically sealed" equipment.]

Emission Rate

	AMOUNT (lbs.)
Total Nameplate Capacity at End of Year of active, non-hermitically sealed gas insulated switchgear.	
Total annual emissions (calculated pursuant to Appendix A)	
	PERCENT (%)
Emission Rate (Emissions/Capacity)	

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APPENDIX C

SF_6 GIS ANNUAL INVENTORY REPORT			
	Annual Reporting Form		
Name:		Company Name:	
Title:		Report Year:	
Phone:		Date Report Completed:	
	Gas Insulated Switchgear Inventory		

Equipment								
ID No.	**Type (Circuit Breaker; transformer) etc.)**	**Manufacturer**	**Date Manufactured**	**Seal Type (hermetic/ non-hermetic)**	**Voltage Capacity (in kilovolts)**	**SF_6 Nameplate Capacity (charge in pounds)**	**Location/Date Installed; Date Removed**	**Status (in use, not in use)**

Gas Container Inventory			
Type	**Size**	**Total**	**Location**

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